

DETAILED ACTION

1. The following is a **Notice of Allowability** in response to the Examiner's Amendment per telephonic interviews with Stanley H. Kremen (Reg. No. 51,900) on 25 March 2011 and 26 March 2011. Claims 7, 14 and 18 have been amended. Claims 8-13 and 15-17 Claims 1-6 were previously cancelled. Claims 7, 14 and 18 remain pending in this application.

EXAMINER'S AMENDMENT

2. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Stanley H. Kremen (Reg. No. 51,900) on 25 March 2011 and 26 March 2011.

3. The application has been amended as follows:

Note: Corrections have been underlined (example) and deletions have been placed in brackets (~~example~~).

Drawings

The following changes to the drawings have been approved by the examiner and agreed upon by applicant:

Figures 4 and 5 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

In order to avoid abandonment of the application, applicant must make these above agreed upon drawing changes.

Applicant is reminded that the Patent and Trademark Office no longer makes drawing changes and that it is applicant's responsibility to ensure that the drawings are corrected in accordance with the instructions as set forth above.

Specification

4. The Abstract on pgs. 26-27 of the Specification received by the Office on 28 February 1997 has been amended as follows:

A self-addressing control unit system and method for controlling a sequence of or an array of display signs comprising of a remote or master controller and a plurality of control units interconnected by a physical or logical parallel electrical bus having multiple connections to transfer data or power between the plurality of control units; wherein the electrical bus further comprises of a main broadcast line, an addressing line and a feedback line to every control unit. The remote or master controller transmits an initial address to a first of the plurality of control units on the addressing line of the bus where a calculator or computer within each of the plurality of control units computes its own address by performing a mathematical operation that changes the initial address by adding a constant of one to the address received to produce its own new address.

A protocol for self-addressing control units is effected by arranging a plurality of control units in a sequence and running a line from a master controller with links off the line to each control unit. A feedback line is provided in the reverse direction for each control unit to communicate backwards. The master controller sends out a signal to identify itself and the control units down the line address and identify themselves by adding a 1 to the number that each control unit receives from the previous control unit. Accordingly, the first control unit addresses itself as 1, the second control unit addresses itself as 2, etc. This protocol has applicability to modular signs as well as other fields of application of wherein a number of control units are linked together such as a computer networking, prosthetics, etc.

When used in connection with a modular sign, the protocol of the present invention can be used to coordinate displaying a message by allowing each of a plurality of control units to display a desired character to form a message on an array of control units. This sign can be remotely controlled by a pager system. Each control unit includes a box housing a Mylar scroll operated by a motor and an optical sensor to read markings on the Mylar scroll to position appropriate characters in response to a signal to display a character to form a part of a message on the modular sign. The box includes an open face with a frame there around which is a black opaque color. A transparent cover sits thereover to seal up the control unit. The control units can be removed and serviced and/or replaced by means of extraction tools. The control units are mounted against a wall or within an enclosure by connecting brackets including a plurality of contacts formed within receptacles positioned along the brackets to receive spades extending from the back of the control units. Accordingly, the mounting brackets provide electrical contacts as well as attachment for the control units. The control units include circuit boards in contact with the spades and a reverse bus is formed on the circuit board to run power and data along the system.

5. The Related Art on pg. 2, lines 5-6 of the Specification received by the Office on 28 February 1997 has been amended as follows:

In the past signs have been made to have a single image thereon for the life of the sign. Of course, the entire face of the sign ~~old~~ could be replaced with a new face.

Claims

6. The claims have been amended as follows, and replaces all previous claims.

Claim 1 **(Cancelled)**

Claim 2 **(Cancelled)**

Claim 3 **(Cancelled)**

Claim 4 **(Cancelled)**

Claim 5 **(Cancelled)**

Claim 6 **(Cancelled)**

Claim 7 **(currently amended)** A self-addressing control unit system for controlling a sequence of or an array of display signs comprising:

a) a plurality of control units each associated with a portion of the display sign array and all electrically interconnected by a physical or logical parallel electrical bus having multiple connections to transfer data or power between the control units,

wherein said electrical bus further comprises a main ~~data-bus~~ broadcast line, an addressing line, and a ~~main~~ feedback line to every control unit ~~to~~ wherein ~~said electrical bus transfers data or power between the control units;~~

b) a master or remote controller electrically interconnected with the plurality of control units by the electrical bus,

wherein the master or remote controller transmits an initial address to a first of the plurality of control units on the addressing line of the bus; transmits data on the main broadcast line; and assigns an address to blocks of data, wherein each said assigned address represents the address of the control unit that processes the block of data;

- c) a communication device associated with the master or remote controller for communicating a signal to the plurality of control units along the main ~~data~~ broadcast line;
- d) a ~~transmission~~ receiver within each of the plurality of control units that receives ~~an~~ the initial address from ~~a previous~~ an immediately preceding control unit along the addressing line;
- e) a calculator or computer within each of the plurality of control units wherein the address for that control unit is computed by performing a mathematical operation that changes the initial address received from the ~~previous~~ immediately preceding control unit via the addressing line,
wherein the mathematical operation comprises adding a constant of one to the address received to produce its own new address;
- f) ~~memory storage is~~ a non-volatile memory storage within each of the plurality of control units wherein the address of that control unit is stored internally within the control unit; and
- g) a transmitter within each of the plurality of control units that sends its address to a next subsequent control unit via the addressing line, and sends data blocks to the master or remote controller over the main broadcast line when the address of that control unit is specified by the master or remote controller;

whereupon when one of said plurality of control units fails, a new or replacement control unit will be installed and automatically re-address itself in the system whenever it receives ~~an~~ the initial address from a ~~previous or prior~~ an immediately preceding control unit, performing the mathematical operation on that initial address to produce a new address, and storing ~~that the~~ the new address in the memory as its newly presented address in the control unit.

Claim 8 **(Cancelled)**

Claim 9 **(Cancelled)**

Claim 10 **(Cancelled)**

Claim 11 **(Cancelled)**

Claim 12 **(Cancelled)**

Claim 13 **(Cancelled)**

Claim 14 **(currently amended)** A self-addressing control unit comprising:

~~that is~~ associated with a portion of a display sign sequence or array, ~~and~~
~~used~~ in a self-addressing control unit system for controlling the sequence or
array,

said system having a plurality of control units interconnected by a physical
or logical parallel electrical bus having multiple connections, ~~wherein said bus~~
~~transfers to transfer~~ data or power between the plurality of control units,
wherein said electrical bus further comprises a main broadcast line, an
addressing line and a feedback line to every control unit,

said control unit comprising:

a) a ~~transmission~~ receiver that receives an initial address from a ~~first~~
~~other~~ an immediately preceding control unit in the system along the
addressing line;

b) a master or remote controller electrically interconnected with the
plurality of control units by the electrical bus,

wherein the master or remote controller transmits an initial address
to a first of the plurality of control units on the addressing line of the
bus; transmits data on the main broadcast line; and assigns an
address to blocks of data, wherein each said assigned address
represents the address of the control unit that processes the block of
data;

- c) a communication device associated with the master or remote controller for communicating a signal to the plurality of control units along the main broadcast line;
- d) a calculator or computer that computes a new address for the control unit by performing a mathematical operation that changes the initial address received from the ~~first other~~ immediately preceding control unit via the addressing line.

wherein the mathematical operation comprises adding a constant of one to the address received to produce its own new address;

- e) a non-volatile memory storage ~~memory storage~~ that stores its new address ~~of the control unit;~~ and,

f) a transmitter that sends its new address to a ~~second other~~ next subsequent control unit: via the addressing line, and sends data blocks from every control unit to the master or remote controller over the main broadcast line when the address of that control unit is specified by the master or remote controller;

whereupon when one of said plurality of control units fails, a new or replacement control unit will be installed and automatically re-address itself in the system whenever it receives the initial address from the immediately preceding control unit, performing the mathematical operation on that initial address to produce a new address, and storing the new address in the memory as its newly presented address in the control unit.

Claim 15 **(Cancelled)**

Claim 16 **(Cancelled)**

Claim 17 **(Cancelled)**

Claim 18 (**currently amended**) A method of networking a plurality of self-addressing control units for controlling a sequence of or an array of display signs comprising:

- a) providing a plurality of control units each containing ~~storage-memory~~ a non-volatile memory storage and each associating with a portion of the display sign array and all electrically interconnecting by a physical or logical parallel electrical bus having multiple connections, wherein said electrical bus further comprises a main broadcast line, an addressing line and a feedback line to every control unit, wherein and said electrical bus transfers data or power between the control units;
- b) providing a master or remote control electrically interconnecting with the plurality of control units by the electrical bus;
- c) communicating with the master or remote controller for communicating a signal to the plurality of control units along the electrical bus by sending a system start-up signal from the controller along the main broadcast line to the plurality of control units

wherein the master or remote controller transmits an initial address to a first of the plurality of control units on the addressing line of the bus; transmits data on the main broadcast line; and assigns an address to blocks of data, wherein each said assigned address represents the address of the control unit that processes the block of data;

- d) causing each control unit to calculate an address associated with that control unit by receiving the initial address from a an first-other immediately preceding control unit, performing a mathematical operation on ~~that the~~ initial address received to create a new address,

wherein the mathematical operation comprises adding a constant of one to the received address to produce its own new address;

- e) storing the new address in its non-volatile memory storage, and transmitting the new address to a ~~second~~ other next subsequent control unit via the addressing line and sending data blocks from every control unit to the master or remote controller over the main broadcast line when the address of that control unit is specified by the master or remote controller; and
- f) re-addressing whereupon one of said plurality of control units fails, a new or replacement unit will be installed and automatically re-address itself in the system by receiving the initial address from ~~a previous or prior~~ the immediately preceding control unit, performing the mathematical operation on that initial address to produce a new address, and storing ~~that~~ the new address in the memory as its newly presented address in the control unit system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following references are cited to further show the state of the art with respect to display/signage systems.

European Patent Publication No. 136178 A2 discloses a method for automatically reconfiguring the memory address space of a plurality of memory boards allows varying capacity boards to be arbitrarily assigned to backplane locations without human

intervention.

Japanese Patent Publication No. 05-344137 A discloses a data transmission system which can automatically perform address setting in a short time in the case of reconstituting the system by the extension of transmission units, the reduction of transmission units or the exchange of transmission units.

U.S. Patent Publication No. 2001/0006375 A1 discloses a video interface mechanism used when an image is displayed on a display panel, more particularly to a method of driving a plurality of display panels or a high-resolution panel, a driving device for driving the same, a display device and the like.

U.S. Patent Publication No. 2004/0015268 A1 discloses a display and control unit, a product type management apparatus, a communication relay device, a communication device, and a broadcasting communication system for remotely setting and controlling the states such as temperatures and humidity of a plurality of object control sections in a manufacture apparatus such as a furnace and an oven.

U.S. Patent Publication No. 2006/0030951 A1 discloses apparatuses and methods for controlling a system that operates responsive to a plurality of input control signals.

U.S. Patent No. 5,184,116 discloses a back-lightable display panel for displaying alphanumeric characters and graphics comprising a plurality of mechanically movable

elements, each having a dark translucent face and a bright translucent face which are moved from one to the other face interchangeably by a series of electromechanical driving elements; and diffusion means interposed between the source of light and the display panel for scattering the light falling on the display panel from the source, whereby shadows cast by the electromechanical driving elements on the display panel are substantially invisible from the front of the display.

U.S. Patent No. 5,519,829 discloses a system for storing and processing an array of data-elements formatted as a plurality of pages of the data elements, and especially for use in a demand-paged dual memory system.

U.S. Patent No. 5,583,754 discloses a device for configuring functional units a serial master-slave arrangement, including a master unit having a digital computer and an input/output unit, a plurality of slave units each having a digital computer and two input/output units, the master unit being connected to a first slave unit, and the slave units being connected to one another in series via the in-put/output units and data-transfer lines.

U.S. Patent No. 5,757,353 discloses a CPU that writes display character codes corresponding to a liquid crystal display position to display RAM to cause any desired character to be read from character generator ROM and to be displayed.

U.S. Patent No. 6,097,351 discloses a display device which includes a simplified wiring for respective display elements is provided to facilitate the assembly and maintenance.

U.S. Patent No. 6,593,902 B1 discloses an extending type of display apparatus of which the screen can be extended by connecting a plurality of display units each having the same configuration to each other, in which the display unit comprises a plurality of display elements arrayed in a matrix, a controller for controlling each display state of each display element, a memory for storing therein each address information for each of the display elements, a signal transmitting section for signal transaction between controllers, and a power transmitting section for supplying power, and the controller executes signal transaction with controllers of any other display units adjacent to the controller through the signal transmitting section, recognizes a size of the screen obtained by connecting a plurality of the display units to each other as well as a position of the unit in the screen, and generates each address information according to the position of the unit to be stored in a memory.

U.S. Patent No. 6,605,902 B2 discloses a display is provided which is constructed with a plurality of display blocks linked together so as to be continuous in the vertical direction.

U.S. Patent No. 6,646,646 discloses a memory system and method for allocating and accessing memory.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer L. Norton whose telephone number is (571)272-3694. The examiner can normally be reached on Monday-Friday between 9:00 a.m. - 5:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Albert DeCady can be reached on 571-272-3819. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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